MEC-COM-M154

Mini PCI-e 2-port RS-232 and 2-port RS232/422/485 serial board with power input

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User's Manual

Third Edition, February 2014

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Mini PCI-e Serial Card

User's Manual

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Technical Support Contact Information

http://www.cervoz.com/support/technical.php

Cervoz Co., Ltd.

Tel: +886-2-2911-9599

Fax: +886-2-2911-9566

Table of Contents

Chapter 1	**Introduction**	4
	Overviews	4
	Features	4
	Installation Flowchart	5
	Package Checklist	5
Chapter 2	**DIP Switch Setting**	6
Chapter 3	**Hardware Installation**	8
Chapter 4	**Software Installation**	12
Appendix	**Pin Assignments**	19
	Board Side Pin Assignments	19
	Device Side Pin Assignments	21
	Technical Reference	23
	MEC-COM-M154 Specifications	23
	MEC-COM- M154 Dimensions	24
	Product Warranty Statement	25

1

Introduction

Overview

MEC-COM-M154 is a serial communication card for embedded PC. The card follows the Mini PCI-e standard which is complaint with PCI Express x 1 classification and small form factor (30.00 x 50.95 mm). This board fits in any host computer that has Mini PCI-e card slots.

Features

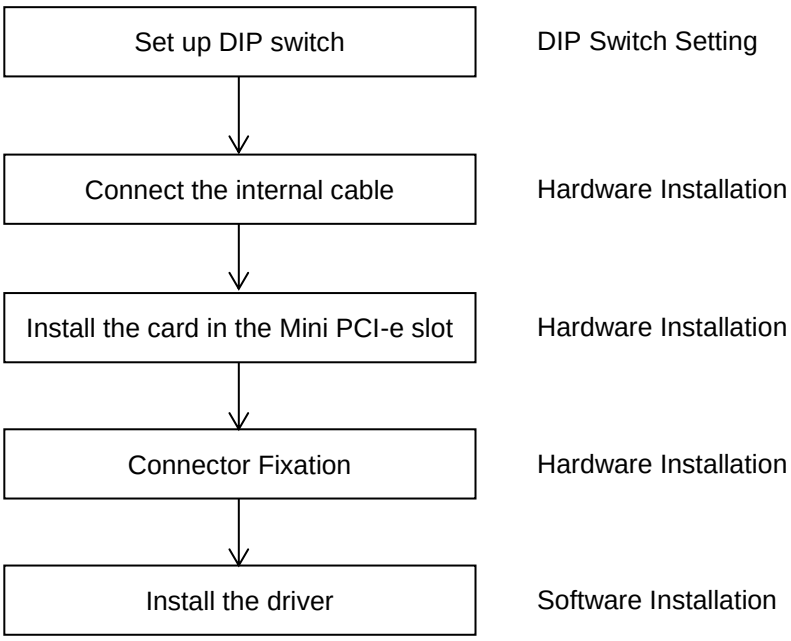
The PCI Express boards have the following outstanding features:

- Single-Lane (x1) PCI-Express with throughput up to 2.5Gbps
- Fully compliant with PCI-Express Base Specification Rev 1.1
- Top serial transmission performance up to 921.6 Kbps baud rate
- FIFO 128 Bytes, 15 KV ESD protections on board
- H/W, S/W automate flow control supported
- RS-232/422/485 mode selectable by DIP switches setting
- Each port supports 5V or 12V power output by jumper setting

Installation Flowchart

Installation Flowchart of MEC-COM-M154

The following flowchart provides a brief summary of the procedure you should follow to install the Mini PCI-e card:



Package Checklist

The following items are included in the Mini PCI Express board Package:

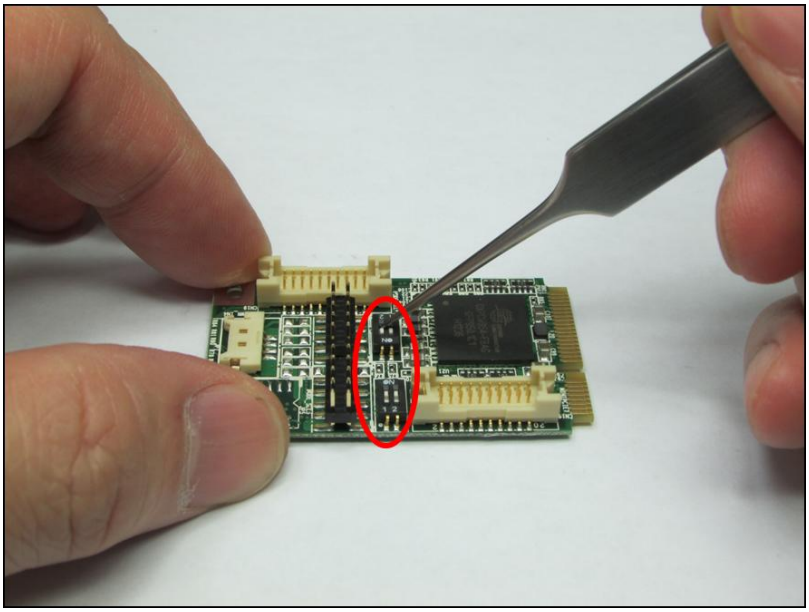
- Mini PCI-e Card x 1
- Bracket x 2
- 20Pin Internal Cable w/ two DB9 Male Connectors (30cm) x 2
- 4Pin Power Input Cable (30cm) x 1
- Quick Installation Guide (Printed) x 1
- Driver CD x 1

Note: *Notify your sales representative if any of the above items are missing or damaged.*

2

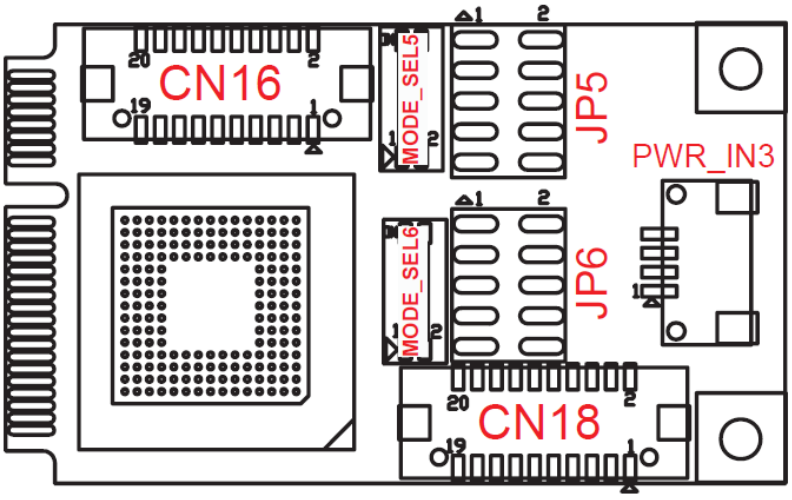
DIP Switch Setting

Set up the DIP switch



Make sure you set up the correct DIP switch before hardware installation

DIP Switch Define



Mode Select

RS232/422/485 Mode Select Switch (MODE_SEL5)

DB9 Male Connector-1	MODE_SEL5
	DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

RS232/422/485 Mode Select Switch (MODE_SEL6)

DB9 Male Connector-2	MODE_SEL6
	DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

	Make sure you set up the correct DIP switch before hardware installation
Note	connectors near the red line are connector 1 and connector 3

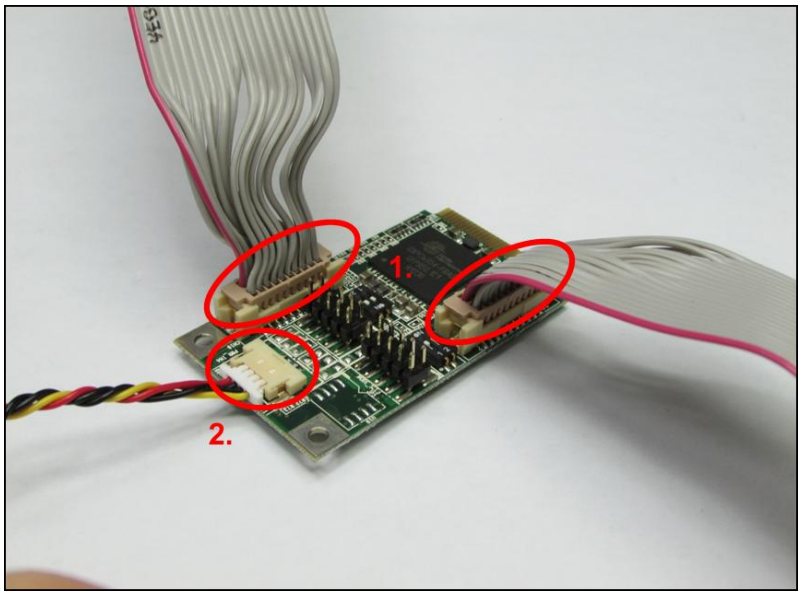
3

Hardware Installation

This chapter describes the PCI Express Series hardware installation procedure. Since the BIOS automatically assign the PCI Express board's IRQ number and I/O addresses, you must plug in the board before installing the driver.

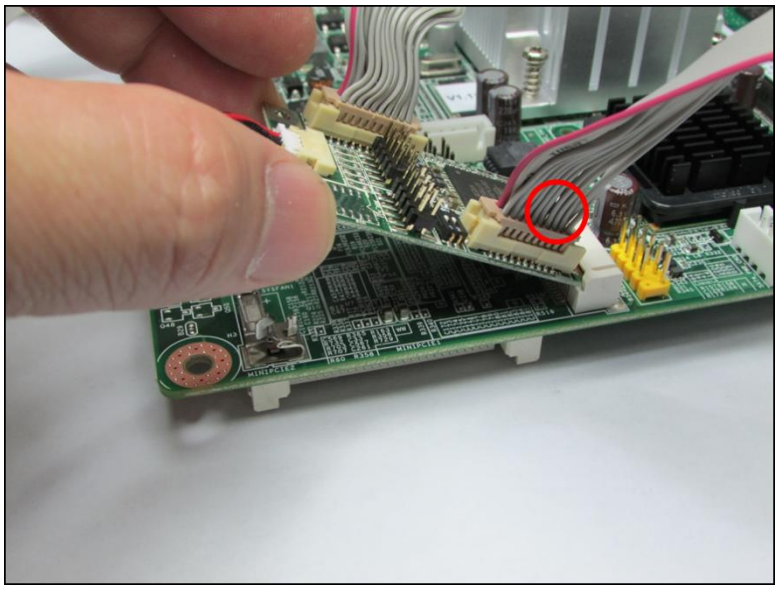
Step 1 Connect the internal cable to the card

1. Connect the internal cable to the card
2. Connect the power cable to the card



Note	The power cable will be needed if you wish to have the COM ports powered. (Please refer to the user manual appendix for the power select jumper setting)

Step 2 Install the card to the Mini PCI-e slot



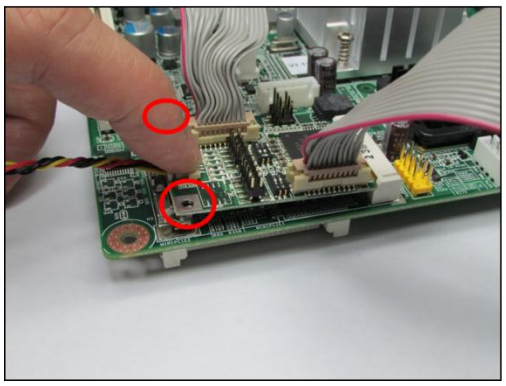
Make sure you install the card in the right position (fool-proof design)

Step 3 Fix the card on the motherboard (clip type or screw type)

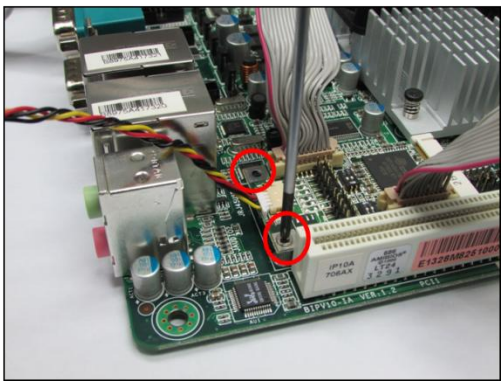
There are 2 options to fix the card. It depends on the design of the motherboard (clip or screw).

1. Clip type: make sure you press down the card and let the clips fix the card
2. Screw type: make sure you tighten up the screws to fix the card

Clip type

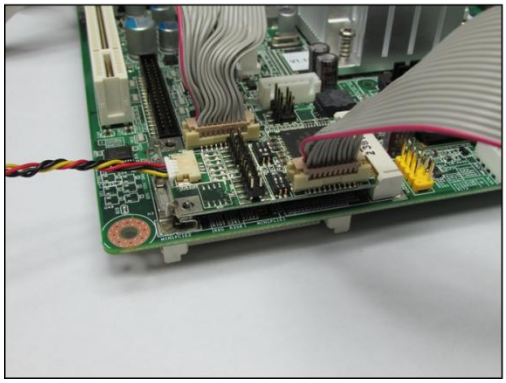


Screw type

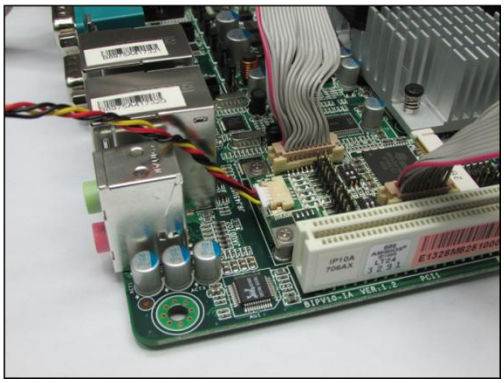


Step 4 Card installation completed

Clip type

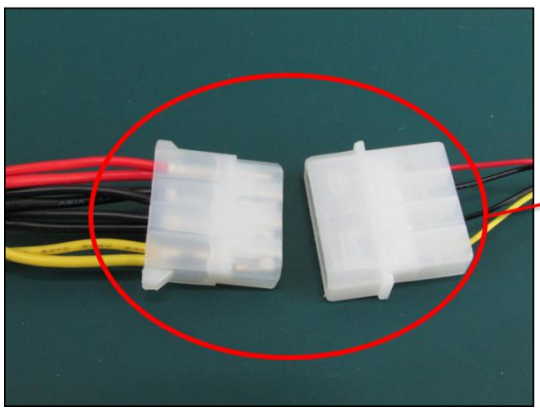


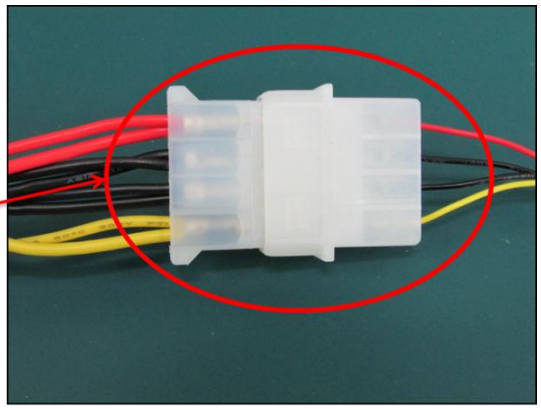
Screw type



Step 5 Connect the power cable to the 4PIN power connector

Connect the power cable to the big 4PIN power connector from the power supply

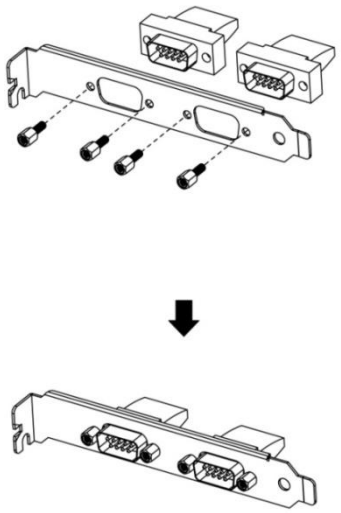




Connector Fixation

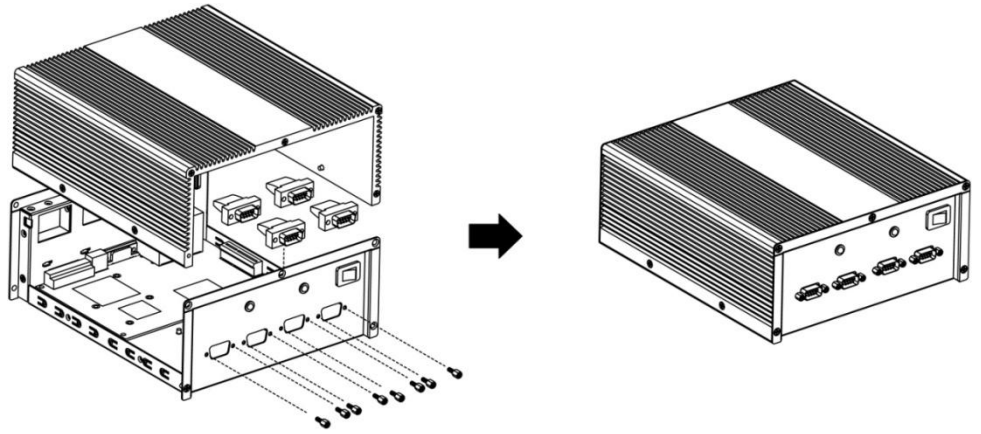
1. Standard PCI/PCIe Bracket

PCI / PCIe IO Bracket

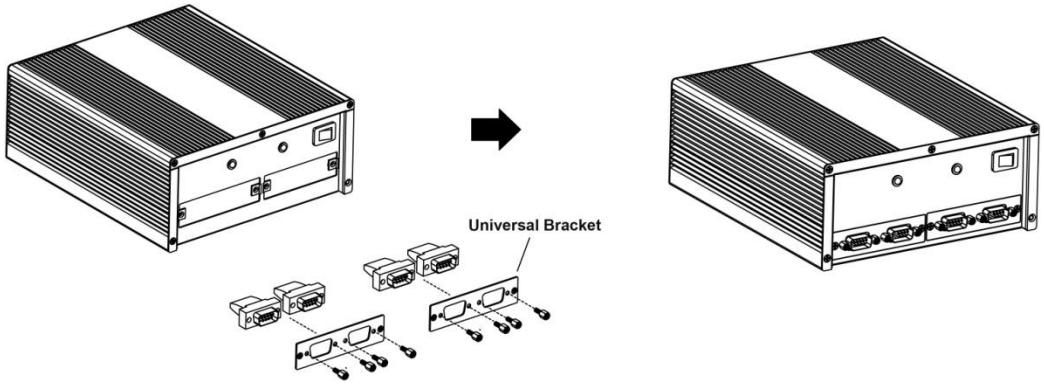


2. Customized Front / Rear Plate

Front / Rear I/O Plate



Universal Bracket



4

Software Installation

This chapter gives installation, configuration, and update/removal procedures for the driver for Win 2003, Win XP, Win Vista, and Win 7.

Step 1	**Turn on PC and start Windows**

Note	XP OS as example

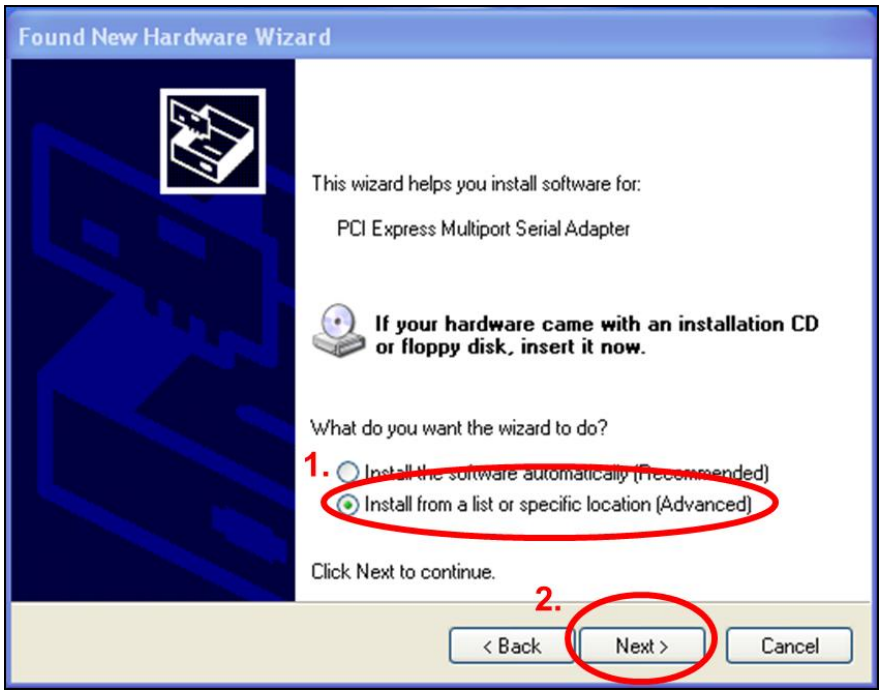
Step 2 Windows automatically detects the new device

1. If the card is installed properly, system would detect the new device and the hardware wizard would start automatically.
2. Select “No, not this time”
3. Click “Next”

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
2.
Click Next to continue.
3.
< Back
Next >
Cancel

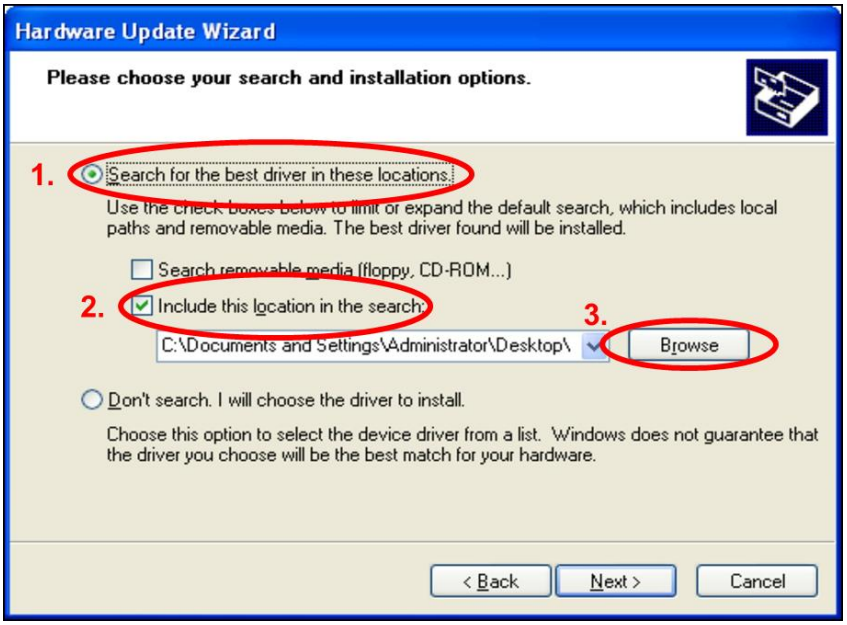
Step 3 Insert CD

1. Select “Install from a list or specific location (Advanced)”
2. Click “Next”


Found New Hardware Wizard
This wizard helps you install software for:
PCI Express Multiport Serial Adapter
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
1.
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
2.
< Back
Next >
Cancel

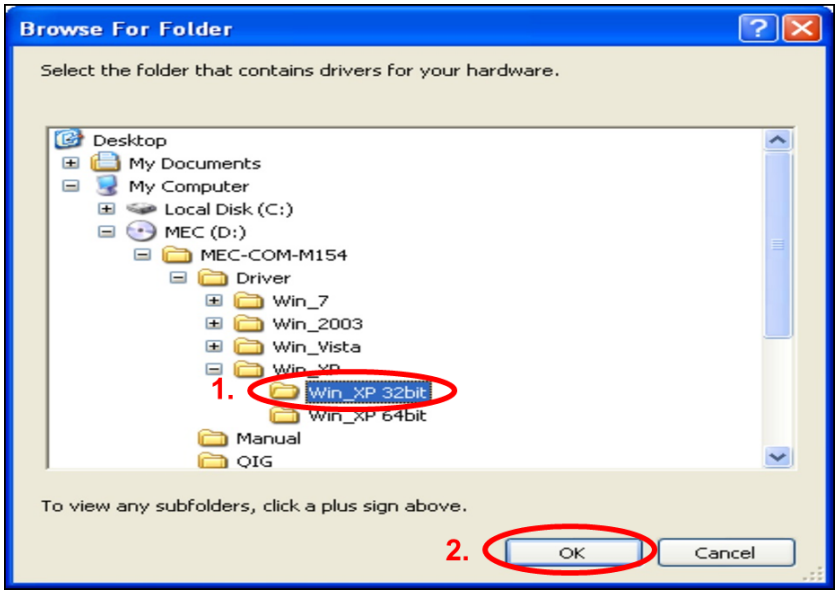
Step 4 Choose installation options

1. Select “Search for the best driver in these locations.”
2. Select “Include this location in the search:”
3. Click “Browse”


Hardware Update Wizard
Please choose your search and installation options.
1.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
2.
Include this location in the search:
3.
C:\Documents and Settings\Administrator\Desktop\
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

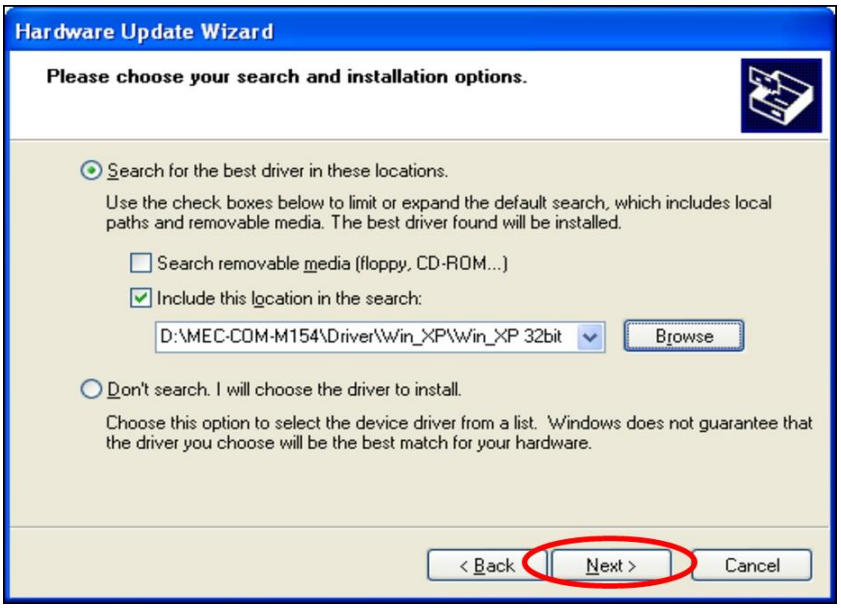
Step 5 Browse for folder (Ex.: XP 32bit)

1. Select the driver by route: *My Computer -> CD or DVD drive -> MEC-COM-M154 -> Driver -> Win_XP -> Win_XP 32bit*
2. Click “OK”



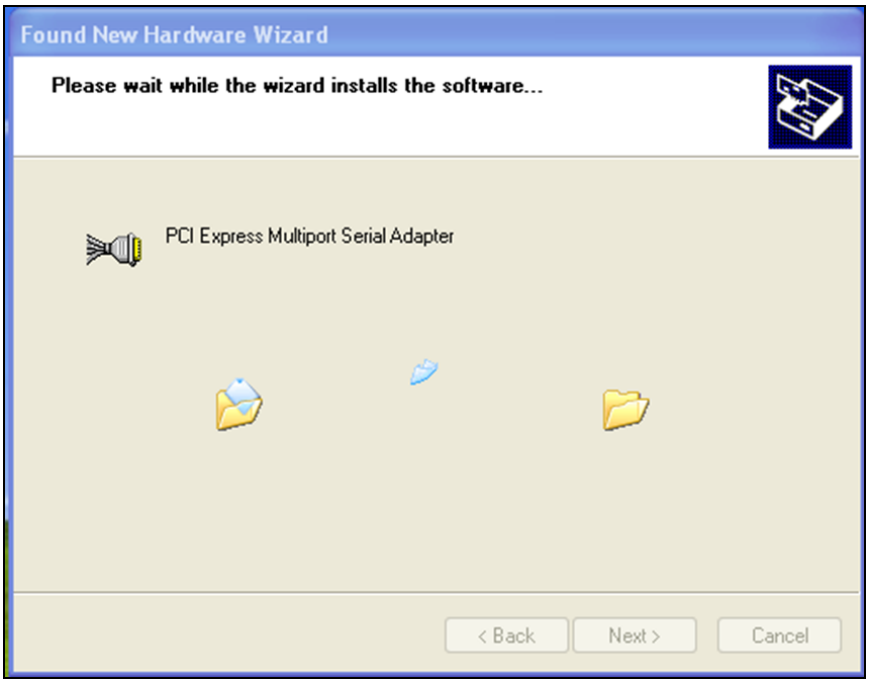
Step 6 Confirm driver folder

Click “Next”


Hardware Update Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
D:\MEC-COM-M154\Driver\Win_XP\Win_XP 32bit
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

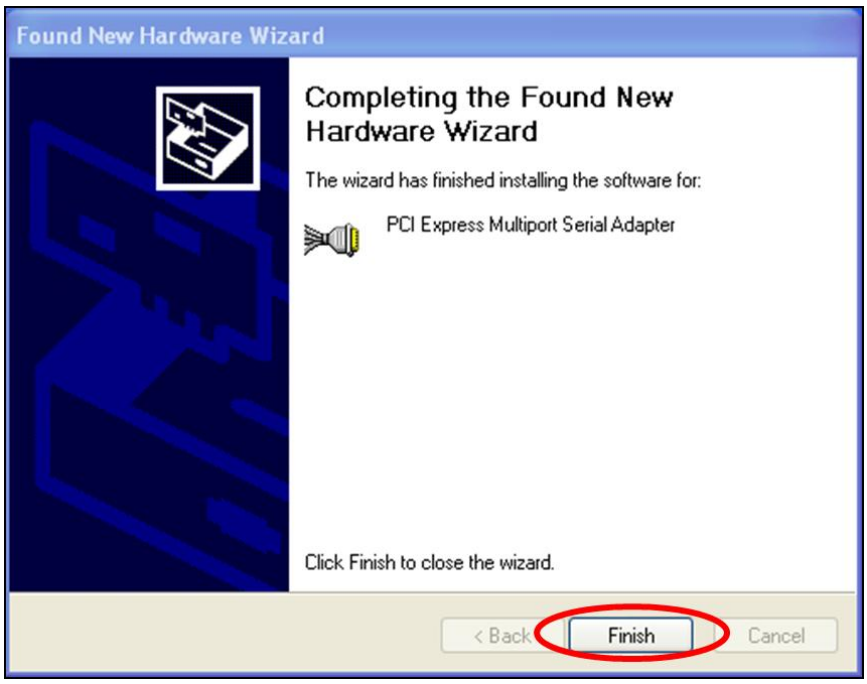
Make sure you select the correct driver.

Step 7 Installation in progress


Found New Hardware Wizard
Please wait while the wizard installs the software...
PCI Express Multiport Serial Adapter
< Back
Next >
Cancel

Step 8 Driver installation completed

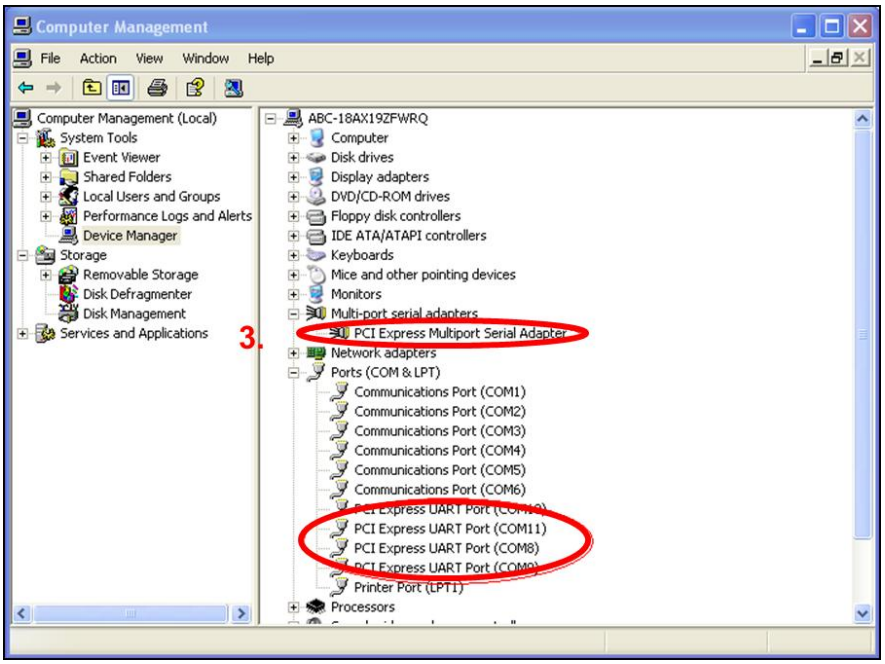
Driver installation is completed, click “Finish”


Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
PCI Express Multiport Serial Adapter
Click Finish to close the wizard.
< Back
Finish
Cancel

Step 9 Confirm if driver is installed

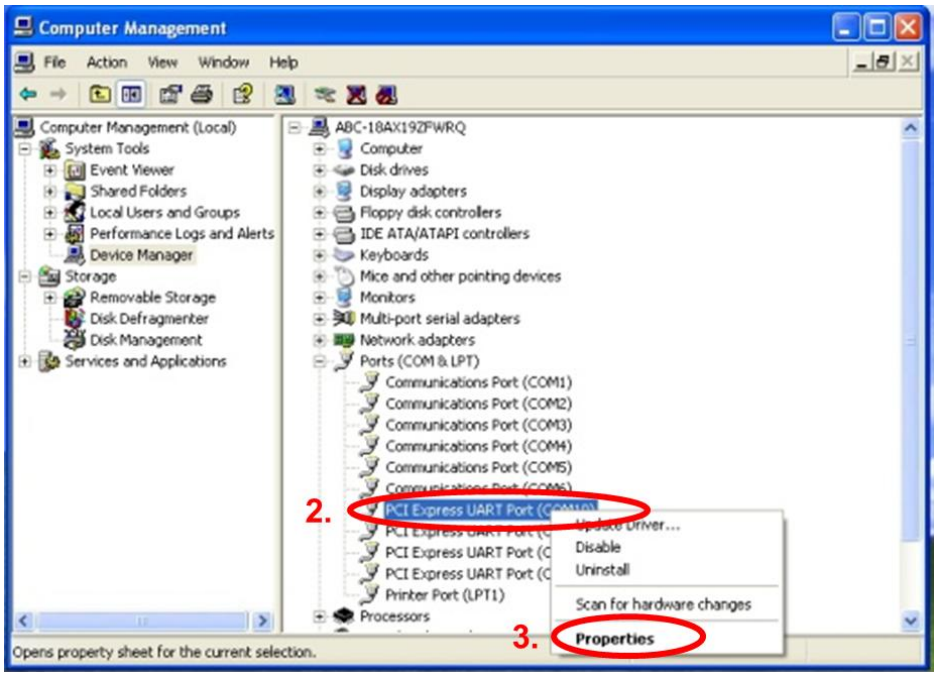
1. Start “Computer Management” program
2. Go to the route:

   My Computer → Manage → Device Manager → Multi-port serial adapters
3. You would find driver name: PCI Express Multiport Serial Adapter
4. Device is ready to be used



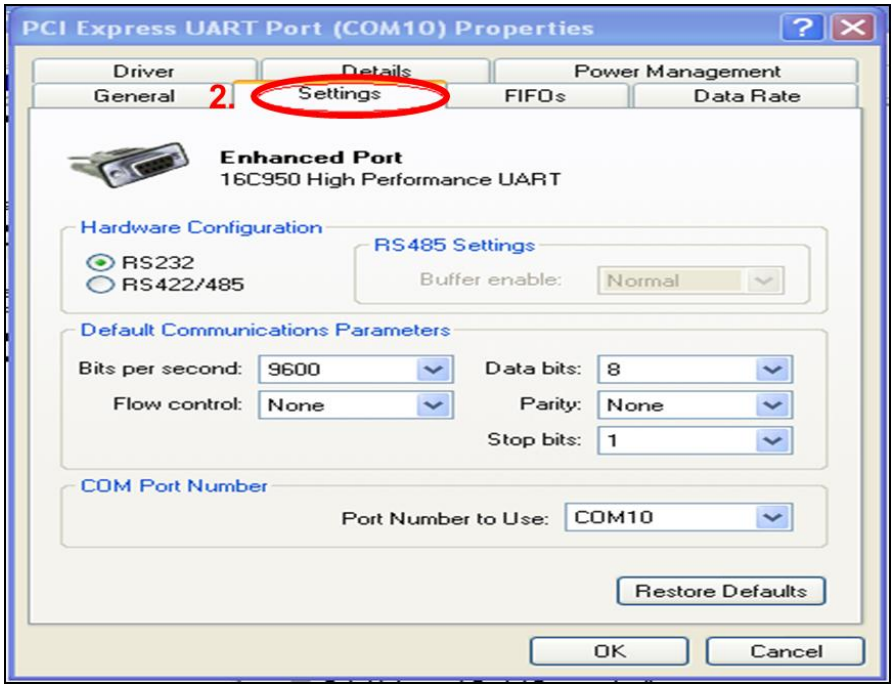
Step 10 Set up the COM ports

1. Set up the COM ports for your requirement (RS232 or RS422/485)
2. Select the COM port and right click
3. Select “Properties”



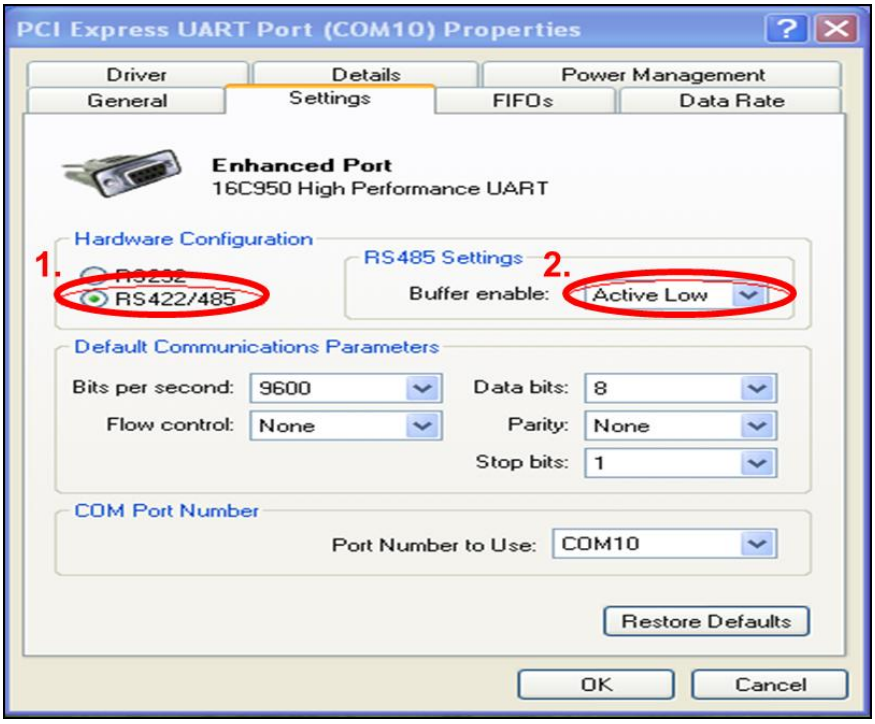
Step 11 COM ports properties settings

1. Properties settings window would pop out
2. Select the “Settings” page



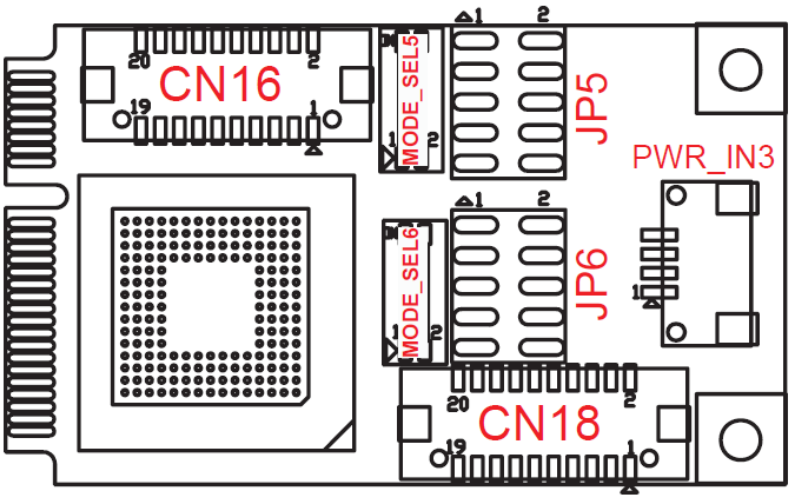
Step 12 Select COM ports hardware configuration

1. Select the hardware configuration for your COM port (either RS232 or RS422/485)
2. Select Buffer enable to “Active Low”



Appendix

❑ Pin Assignments



Board Side Pin Assignments

Wire to Board Connector (CN18)

Pin	Description	Pin	Description
1	DCD_1	2	DCD_2
3	DSR_1	4	DSR_2
5	RXD_1	6	RXD_2
7	RTS_1	8	RTS_2
9	TXD_1	10	TXD_2
11	CTS_1	12	CTS_2
13	DTR_1	14	DTR_2
15	RI_1	16	RI_2
17	N/C	18	N/C
19	GND	20	GND

Wire to Board Connector (CN16)

Pin	Description	Pin	Description
1	DCD_3	2	DCD_4
3	DSR_3	4	DSR_4
5	RXD_3	6	RXD_4
7	RTS_3	8	RTS_4
9	TXD_3	10	TXD_4
11	CTS_3	12	CTS_4
13	DTR_3	14	DTR_4
15	RI_3	16	RI_4
17	N/C	18	N/C
19	GND	20	GND

DB9 Male Connector-1/2 With Power Select (JP6)

DB9 Male Connector-1	JP6	DB9 Male Connector-2	JP6
Pin 9 = +5V	Short 1-3	Pin 9 = +5V	Short 2-4
Pin 9 = +12V	Short 3-5 or 5-7	Pin 9 = +12V	Short 4-6 or 6-8
Pin 9 = RI	Short 7-9（Default）	Pin 9 = RI	Short 8-10（Default）

DB9 Male Connector-3/4 With Power Select (JP5)

DB9 Male Connector-3	JP5	DB9 Male Connector-4	JP5
Pin 9 = +5V	Short 1-3	Pin 9 = +5V	Short 2-4
Pin 9 = +12V	Short 3-5 or 5-7	Pin 9 = +12V	Short 4-6 or 6-8
Pin 9 = RI	Short 7-9（Default）	Pin 9 = RI	Short 8-10（Default）

Power Input Connector (PWR_IN3)

Pin	Description
1	+5V
2	GND
3	GND
4	+12V

RS232/422/485 Mode Select Switch (MODE_SEL5)

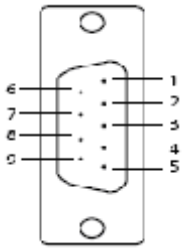
DB9 Male Connector-1	MODE_SEL5
	DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

RS232/422/485 Mode Select Switch (MODE_SEL6)

DB9 Male Connector-2	MODE_SEL6
	DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

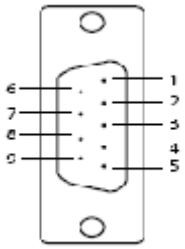
Device Side Pin Assignments

RS232/422/485 Port DB9 Male Connector-1



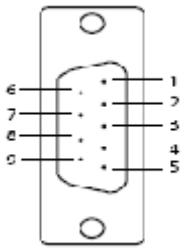
Pin	RS232 Description	RS-422/485 FULL DUPLEX Description	RS-485 HALF DUPLEX Description
1	DCD_1	TX_1-	DATA_1-
2	RxD_1	TX_1+	DATA_1+
3	TxD_1	RX_1+	
4	DTR_1	RX_1-	
5	GND		
6	DSR_1		
7	RTS_1		
8	CTS_1		
9	RI_1		

RS232/422/485 Port DB9 Male Connector-2



Pin	RS232 Description	RS-422/485 FULL DUPLEX Description	RS-485 HALF DUPLEX Description
1	DCD_2	TX_2	DATA_2-
2	RxD_2	TX_2+	DATA_2+
3	TxD_2	RX_2+	
4	DTR_2	RX_2-	
5	GND		
6	DSR_2		
7	RTS_2		
8	CTS_2		
9	RI_2		

RS232 Port DB9 Male Connector-3/4



DB9 Male Connector-3		DB9 Male Connector-4	
Pin	Description	Pin	Description
1	DCD_3	1	DCD_4
2	RxD_3	2	RxD_4
3	TxD_3	3	TxD_4
4	DTR_3	4	DTR_4
5	GND	5	GND
6	DSR_3	6	DSR_4
7	RTS_3	7	RTS_4
8	CTS_3	8	CTS_4
9	RI_3	9	RI_4

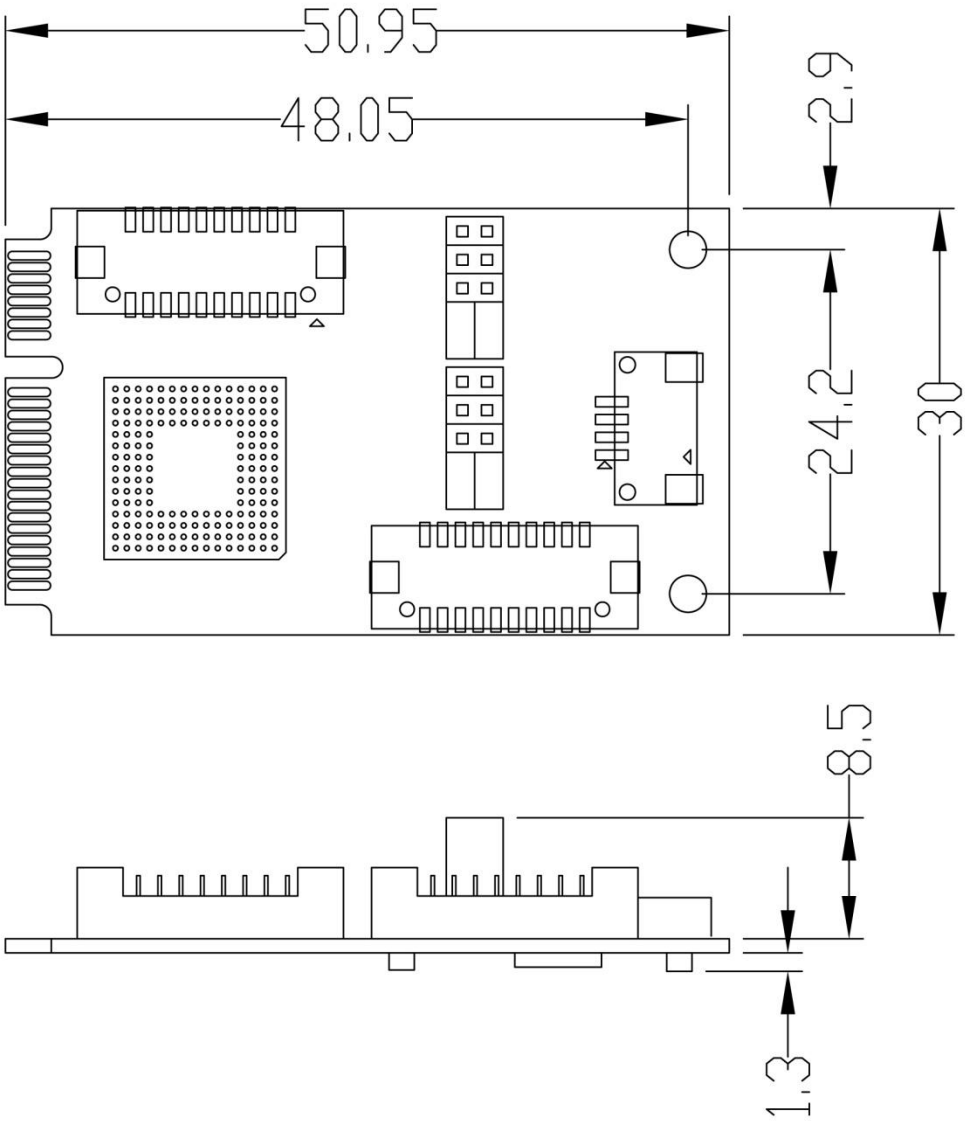
❑ Technical Reference

MEC-COM-M154 Specifications

General	
PCI-Express Revision	PCI-Express Base Specification Rev 1.1
PCI-Express Electromechanical Revision	PCI-Express Mini Card Electromechanical Rev. 1.1
Hardware	
Controllers	OXPCIe954 (16C550C compatible)
Bus	Single-Lane (x1) PCI-Express with throughput up to 2.5Gbps
Interface (Connector)	
RS-232	2 (DB9 male)
RS-232 / 422 / 485	2 (DB9 male)
Serial Line Protection	
ESD Protection	15 KV on board
Serial Port Power	
Voltage Select	5V or 12V
Performance	
Baud Rate	Asynchronous baud rates up to 921.6 Kbps
Serial Communication Parameters	
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	No Parity bit Odd Parity bit Even Parity bit Parity bit forced to 1 Parity bit forced to 0
Flow Control	RTS/CTS, XON/XOFF
Serial Signals	
RS-232	TXD, RXD, RTS, CTS, DTR, DSR, DCD, GND
Parallel Signals	
SPP / EPP / ECP	STROBE, DATA0~DATA7, ACK, BUSY, PE, SEL, AUTOF, ERROR, INIT, SELIN, GND
Driver Support	
Operating Systems	Win 2003, Win XP, Win Vista, Win 7
Power Requirement	
Power Consumption	424mA@3.3V
Dimensions	
Width x Length (mm)	30.00 x 50.95
Environmental Limits	
Operating Temperature	-20°C ~ 70°C
Storage Temperature	-20°C ~ 85°C
Humidity	5% ~ 95%

Regulatory Approvals	
EMC	CE, FCC
EMI	EN 55022, EN61000-3-2, EN61000-3-3, FCC Part 15 Subpart B Class B
EMS	En 55024, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11
Reliability	
MTBF	1,712,123 hr
Warranty	3 years

MEC-COM-M154 Dimensions



❑ Product Warranty Statement

Cervoz products are warranted to be free from manufacturing defects in materials and workmanship starting from the date of delivery. The actual warranty period of Cervoz products vary with product categories. Complete details can be found here:
http://www.cervoz.com/support/warranty.php
During the warranty period, we shall, at our option, either repair or replace any product that proves to be defective under normal operation.

Defects, malfunctions, or failures of the warranted product caused by damage resulting from natural disasters (such as by lightening, flood, earthquake, etc.), environmental and atmospheric disturbances, other external forces such as power line disturbances, plugging the board in under power, or incorrect cabling, and damage caused by misuse, abuse, and unauthorized alteration or repair, and the product in question is either software, or an expendable item (such as a fuse, battery, etc.), are not warranted.

RMA Instruction

- Customers must fill in Cervoz Return Merchandise Authorization (RMA) Request Form and obtain a RMA number prior to returning a defective product to Cervoz for service.
- Customers must collect all the information about the problems encountered and note anything abnormal and describe the problems on the “Cervoz Service Form” for the RMA number application process.
- Charges may be incurred for certain repairs. Cervoz will charge for repairs to products whose warranty period has expired. Cervoz will also charge for repairs to products if the damage resulted from acts of God, environmental or atmospheric disturbances, or other external forces through misuse, abuse, or unauthorized alteration or repair. If charges will be incurred for a repair, Cervoz lists all charges, and will wait for customer’s approval before performing the repair.
- Customers agree to insure the product or assume the risk of loss or damage during transit, to prepay shipping charges, and to use the original shipping container or equivalent.
- Customers can send back faulty products with or without accessories (manuals, cable, etc.) and any components from the card. If the components were suspected as part of the problems, please note clearly. Otherwise, Cervoz is not responsible for the devices/parts.
- Repaired items will be shipped along with a "Repair Report" detailing the findings and actions taken.

Limitation of Liability

Cervoz’ liability arising out of the manufacture, sale, or supplying of the product and its use, whether based on warranty, contract, negligence, product liability, or otherwise, shall not exceed the original selling price of the product. The remedies provided herein are the customer’s sole and exclusive remedies. In no event shall Cervoz be liable for direct, indirect, special or consequential damages whether based on contract of any other legal theory.